Environmentallyfriendly methods to control *Eichhornia crassipes*

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The water hyacinth (*Eichhornia crassipes*) is a free-floating aquatic plant that has invaded the waterways and reservoirs in the Dry Zone of Sri Lanka. The study focused on preparing a compost using water hyacinth, using the barrel-composting method, and to assess the nutritional value of the prepared compost, and the heavy metal contamination of fresh water hyacinth, water, and water hyacinth compost. Primary data on the distribution and abundance of *E. crassipes* in the Vavuniya district in the Northern Province were collected by field visits. Water hyacinth samples were collected from heavily infested reservoirs in the district. The compost was prepared using water hyacinth and paddy straw in different proportions, namely, 1:0 (C1), 1:0.5 (C2), 1:0.75 (C3), 1:1 (C4), 1:1.5 (C5) and 1:2 (C6). The pH, EC, Carbon:Nitrogen (C/N) ratio, and primary macro-nutrients (N, P and K) were analyzed. The analysis of heavy metals (Cr, As, and Cd) was carried out using an atomic absorption spectrophotometer. Data were analyzed using descriptive statistics in Minitab. The different composts C1-C6 showed a pH of 8.4 to 8.6, EC 3.2 to 3.5, nitrogen 1.4 to 2.2%, potassium 1.1 to 1.7% and phosphorus 0.6 to0.75%, all within the reference limits set by the Sri Lanka Standard 1246:2003. Arsenic (As) and chromium (Cr) contamination was detected in the C1-C6 type compost, in the range 0.73 – 0.18 mg/kg and 9.3-4.3 mg/kg, respectively. These values varied within the compost heavy metal permissible limits (SLS 1246-2003). In fresh water hyacinth, As and Cr contamination has been detected at 0.73 mg/kg and 11.8 mg/kg respectively but these values were also within the permissible limits (WHO, 1999) and there was no As, Cr or Cd contamination in the water samples which were collected from the study locations. The C1 (1:0) compost, which only contains water hyacinth had a higher C/N ratio (12.0) than other composts. This study recommends the control of water hyacinth, by using it as the only raw material to prepare composts to be used in crop production, but heavy metal contamination test should be carried out before the application of this compost.

Key words: *Eichhornia crassipes*,heavy metals, nutrition value, organic compost